


Clean Version of Pending Claims

**SYSTEM AND METHOD OF MINIMALLY-INVASIVE EXOVASCULAR ANEURYSM
TREATMENT**

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1. (Amended) A system including:

 an elongate exovascular probe, including proximal and distal ends, the probe including a substantially uniform cylindrical outer surface that is sized and shaped to be accepted within and guided by a similarly sized and shaped lumen of a trajectory guide device, the probe also including an outer dimension that is less than about 18 millimeters to permit the probe to be introduced through a similarly-sized minimally-invasive opening in a portion of a subject's skull and exovascularly advanced to an aneurysm within the skull; and

an aneurysm treatment device carried by the probe and dimensioned to permit the aneurysm treatment device to be introduced through the opening.

2. The system of claim 1, further including an imaging device to permit viewing of an image of both the aneurysm treatment device and the aneurysm.

3. The system of claim 2, in which the imaging device includes a magnetic resonance (MR) imaging device.

4. The system of claim 3, in which the imaging device further includes a local MR imaging device near the distal end of the probe.

5. The system of claim 4, in which the local MR imaging device includes at least one microcoil.

7. The system of claim 1, in which at least one of the aneurysm treatment device and the distal end of the probe includes at least one of an MR or CT imagable fiducial structure.
8. The system of claim 1, in which the probe and aneurysm treatment device are both at least one of MR or CT compatible.
9. The system of claim 1, in which the aneurysm treatment device includes a structure having substantially open and substantially closed positions, wherein the open position is sized to permit at least one portion of the aneurysm treatment device to be positioned around at least a portion of at least one of a saccular, globular, or giant aneurysm, and wherein the closed position is sized to permit the at least one portion of the aneurysm treatment device to press against at least a portion of the aneurysm.
10. The system of claim 9, in which the aneurysm treatment device structure includes a shape-memory property.
11. The system of claim 10, in which the shape-memory property, in the absence of applied bias, is associated with one of the open or closed positions.
12. The system of claim 1, further including an elongate member shaped to extend through a lumen in the probe, the elongate member releasably coupling to the aneurysm treatment device.
13. The system of claim 1, in which the aneurysm treatment device is shaped to be extendable from and retractable into a lumen of the probe.
14. The system of claim 1, in which the aneurysm treatment device includes at least one of a clip, a clasp, a snare, a loop, a hook, a staple, or an electrode.

16. The system of claim 1, in which the aneurysm treatment device includes a normally substantially open clip that is substantially closed when retracted into a lumen of the probe, and further including:

an elongate tube shaped to extend through the lumen of the probe, a distal end of the elongate tube shaped to extend out of the distal end of the probe and around a portion of the clip to substantially close a portion of the clip around a portion of the aneurysm; and

a strand shaped to extend through the elongate tube, and releasably coupled to a portion of the clip.

17. The system of claim 16, further including a ring shaped to engage the distal end of the elongate tube, the ring shaped to encircle a portion of the clip to hold the clip in the substantially closed position around the portion of the aneurysm.

24. The system of claim 1, further including an entry device, the entry device including:

a first securing mechanism to secure the entry device in association with the subject's skull; and

a second securing mechanism to secure an orientation of a trajectory guide portion of the entry device to define a path between the minimally-invasive opening and the aneurysm.

25. The system of claim 24, further including an imaging device to provide information upon which the orientation of the trajectory guide is determined.

32. (Amended) A system including:

an elongate exovascular probe, including proximal and distal ends, the probe including a substantially uniform cylindrical outer surface that is sized and shaped to be accepted within and guided by a similarly sized and shaped lumen of a trajectory guide device, the probe also including an outer dimension that is less than about 18 millimeters to permit the probe to be

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introduced through a similarly-sized minimally-invasive opening in a portion of a subject's skull and exovascularly advanced to an aneurysm within the skull;

an aneurysm treatment device carried by the probe and dimensioned to permit the aneurysm treatment device to be introduced through the opening; and

a local imaging device located near the distal end of the probe.

33. The system of claim 32, in which the local imaging device includes a magnetic resonance (MR) imaging device.

34. The system of claim 32, in which the aneurysm treatment device includes a structure having substantially open and substantially closed positions, wherein the open position is sized to permit at least one portion of the aneurysm treatment device to be positioned around at least a portion of an aneurysm, and wherein the closed position is sized to permit the at least one portion of the aneurysm treatment device to press against at least a portion of the aneurysm.

35. The system of claim 32, further including an entry device shaped to introduce the probe.

36. The system of claim 35, in which the entry device includes:

a first securing mechanism to secure the entry device in association with the subject's skull; and

a second securing mechanism to secure an orientation of a trajectory guide portion of the entry device to define a path between the minimally-invasive opening and the aneurysm.

37. A system including:

an elongate exovascular probe, including proximal and distal ends, the probe including an outer surface that is conformally sized and shaped to be accepted within and guided by a correspondingly sized and shaped lumen of a trajectory guide device, the probe also sized and

shaped to permit the probe to be introduced through an opening in a portion of a subject's skull and exovascularly advanced to an aneurysm within the skull; and

an aneurysm treatment device carried by the probe and dimensioned to permit the aneurysm treatment device to be introduced through the opening.

38. The system of claim 37, in which the outer surface of the probe includes a substantially cylindrical surface that is sized and shaped to be accepted within and guided by the lumen of the trajectory guide device.

39. The system of claim 38, in which the outer surface of the probe is a substantially uniform cylindrical surface.

40. The system of claim 39, in which the probe includes:

an elongate outer tube, providing the substantially uniform cylindrical outer surface of the probe that is sized and shaped to be accepted within and guided by a similarly sized and shaped lumen of a trajectory guide device, the outer tube including a longitudinal outer tube lumen; and

an elongate inner tube, including a substantially uniform cylindrical outer surface that is sized and shaped to be accepted within and guided by the outer tube lumen, the inner tube including a longitudinal inner tube lumen.

41. The system of claim 40, in which the aneurysm treatment device includes a clip that is sized and shaped to fit within the inner tube lumen, when the clip is retracted into a closed position, and wherein the clip is sized and shaped to fit about a portion of an aneurysm, when the clip is expanded into an open position.

42. The system of claim 41, in which the probe further includes a strand that is sized and shaped to extend through the inner tube lumen, and wherein the strand is releasably coupled to a

portion of the clip.

43. The system of claim 42, further including a ring, the ring sized and shaped to be carried within the outer tube lumen, and sized and shaped to engage a distal end of the inner tube, and sized and shaped to encircle a portion of the clip to close and hold the clip around the portion of the aneurysm.

44. The system of claim 37, further including an entry device, the entry device including:
a first securing mechanism to secure the entry device in association with the subject's skull; and
a second securing mechanism to secure an orientation of a trajectory guide portion of the entry device to define a path between the minimally-invasive opening and the aneurysm.

45. The system of claim 44, further including means for providing information upon which the orientation of the trajectory guide is determined.

46. The system of claim 45, further including a local imaging device located near the distal end of the probe.
